

L 10585-66

ACC NR: AP5025397

across the crystal with and without radiation. A potential difference in non-irradiated specimens was observed only at temperatures above 330-350°K. Different specimens showed different voltages and various relationships between voltage and temperature before irradiation. On the other hand, potential differences measured after beta radiation were approximately the same for all specimens. The experimental data indicate that the voltage generated in irradiated crystals is due to non-homogeneity in the beta radiation dose, and consequently to non-uniform concentration of current carriers through the crystal. Orig. art. has: 1 figure.

SUB CODE: 20/  
18 SUBM DATE: 05May65/ ORIG REF: 002/ OTH REF: 001

*beh*  
Card 2/2

VASIL'YEV, V.V. VVEMINSKIY, A.A.

Thermodynamic functions of acetaldehyde and deuterioacetaldehyde.  
Zhur. fiz. khim. 39 no.8:2052-2053 Ag '65. (MIRA 18:9)

1. Institut neftekhimicheskikh protsessov, Leningrad.

L 28329-66 EPF(n)-2/EWT(1)/EWT(m)/ETC(f)/EWG(m)/T/EWP(t)/ETI IJP(c) GG/AT/JD/JG

ACC NR: AP6013079

SOURCE CODE: UR/0048/G6/030/004/0679/0680

AUTHOR: Shibayev, V.A.; Avdonin, V.P.; Vasil'yev, I.A.; Mikhal'chenko, G.A.; Plachenov, B.T. 56  
E

ORG: Leningrad Technological Institute im. Lenolet (Leningradskiy tekhnologicheskii institut)

TITLE: On the appearance of an emf incident to annealing of the beta-irradiated alkali halide crystals /Report, Fourteenth Conference on Luminescence held in Riga 16-23 September 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 4, 1966, 679-680

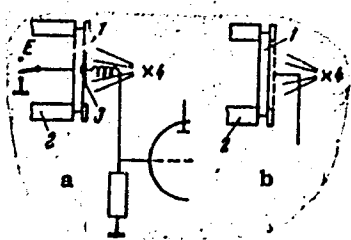
TOPIC TAGS: crystal phosphor, alkali halide, radiation effect, beta radiation, emf

ABSTRACT: In the course of study of the conductivity of alkali halide crystals it was discovered that if a crystal is irradiated with beta particles at 90 K, upon subsequent heating of the crystal, in addition to the familiar thermostimulated luminescence, there is observed a free charge on the surface of the crystal that faced the beta source. The authors tentatively term this emf the "thermostimulated concentration emf". In the experiments this charge was collected on a sputtered aluminum electrode connected to an appropriate indicator. The measuring setups are diagrammed in the figure. The present experiments involved measurements with a sputtered elec-

Card 1/2

L 28329-66

ACC NR: AP6013079



Experimental setups: a) with a sputtered electrode, b) with a non-contact electrode. 1 - crystal, 2 - crystal holder, 3 - electrode, 4 - 500 mc  $\text{Sr}^{90}$  +  $\text{Y}^{90}$  beta source.

trode and with a non-contacting electrode, mounted 0.2 to 0.5 mm from the crystal surface (in the latter case the effect is weaker and opposite in sign). The purpose of the measurements was to determine the magnitude of the charge; this was done by applying a dc voltage sufficient to realize compensation. The measurement results are presented in the form of curves. Two mechanisms of the effect are hypothesized: one is essentially the electret mechanism; the other is based on nonuniform distribution over the thickness of carriers held in traps. An argument in favor of the latter mechanism is the near identity of the temperature of the glow-curve and charge peaks. Orig. art has: 3 figures.

SUB CODE: 20/

SUBM DATE: 00/

ORIG REF: 001/

OTH REF: 000

Card 2/2 CC

VASIL'YEV, I.A.

Welded portal stands for vertical boring and turning lathes. Stan.1  
instr. 30 no.3:22-23 Mr '59. (MIRA 12:3)  
(Lathes)

VASIL'YEV, I.A.; KANDR, L.L.

The 873 filing machine. Bnl.tekh.-ekon.inform. no.10:34-35 '60.  
(MIRA 13:10)

(Machine tools)

VASIL'YEV, I.A.

Leakage determination in armored cables. Razved. i prom. geofiz.  
no. 35:43-45 '60. (MIRA 13:12)  
(Oil well logging)

NOTKIN, Ye.M.; KUR, G.Ye.; ARONSHTEYN, N.M.; prinimali uchastiye: KAMNEV, V.S.; SHASHIN, N.N.; TYURIN, V.I.; VENBRIN, V.D.; MAREYEV, D.I.; VILENSKAYA, I.A.; BORODIN, B.V.; DON-YAKHIO, I.A.; MOSKALENKO, S.M.; ABRAMOVA, Z.A.; KLIMOV, M.D.; VASIL'YEV, I.A. LUK'YANOV, S.K.

Introducing automatic control in coremaking. Lit. proizv. no.6: 15-19  
Je '62. (MIRA 15:6)

1. Nauchno-issledovatel'skiy institut santekhniki Akademii  
stroitel'stva i arkhitektury SSSR (for Luk'yanov).  
(Coremaking) (Automatic control)

NOTKIN, Ye. M.; KUR, G. Ye.; ARONSHTEYN, N. M.; Prinimali uchastiye:  
KAMNEV, V. S.; SHASHIN, N. N.; TYURIN, V. I.; VENBRIN, V. D.;  
DON-YAKHIO, I. A.; ABRAMOVA, Z. A.; VASIL'YEV, I. A.;  
LUK'YANOV, S. K.

Automatic process for the manufacture of sand cores for radiators.  
Sbor. trud. NIIST no.10:5-40 '62. (MIRA 15:10)

1. Moskovskiy chugunoliteynyy zavod imeni Voykova (for Kamnev,  
Shashin, Tyurin, Venbrin).

(Coremaking) (Radiators)

AUTHOR: Vasil'yev, I.A., Engineer

SOV/122-59-2-19/34

TITLE: A Pulse Method of Measuring Large Diameters (Impul'snyy sposob izmereniya bol'shikh diametrov)

PERIODICAL: Vestnik Mashinostroyeniya, 1959, Nr 2, pp 56-57 (USSR)

ABSTRACT: The basic scheme is illustrated in Fig 1 for a vertical mill or grinder. The number of revolutions of the table of the machine are counted by the clicker switch 1. The peripheral length of the workpiece is measured by the number of revolutions and part revolutions of the magnetised roller 5 which drives a disc 6 producing impulses in the counter head 7 for each of the teeth on the disc which are 0.6 to 1 mm apart. According to the diameter of the workpiece, each impulse is equivalent to 0.01 to 0.006 mm of peripheral length. The impulses are counted by the neon lamp decade array 9. By dividing the number of impulses by revolutions made by the table and workpiece the diameter can be shown directly on the array. Measurement can be made without stopping or slowing down the table once the tool is withdrawn. Further exploitation of the principle is shown in Fig 2 where the peripheral length of internal or external

Card 1/2

SOV/122-59-2-19/34

A Pulse Method of Measuring Large Diameters

surfaces can be measured by spring loaded rollers which are pressed against the surface being machined. The system can be made fully automatic, blocking signals being given when rough machining tolerances are reached, on which other tools for final machining can be brought in until the final required diameter is signalled. The system can be adapted for lathes, horizontal and vertical mills, grinding machines and other tools. There are 2 figures.

Card 2/2

L 20112-63

BDS MLK(a)

ACCESSION NR: AP3006667

8/0286/63/000/008/0029/0030

AUTHOR: Vasil'yev, I. F.

*XB*

TITLE: An electron key. Author's certificate NR 15397<sup>4</sup> class H 01h; 2lg, 4 sub 05

SOURCE: Byul. izobreteniy i tovarny\*kh znakov, no. 8, 1963, 29-30

TOPIC TAGS: electron key, transformer-relaxator electron key, diamagnetic current-conducting plate

ABSTRACT: An electron key (See Enclosure 1) having a transformer, a diamagnetic current-conducting plate movable in an airgap of the magnetic circuit of the transformer and a relaxator which is in the form, for example, of a blocking generator, characterized in that, to increase the ratio of the efficient signal to interferences, the core of the transformer is divided into two parts, on one of which is arranged a starting (set) winding, and on the other are arranged two windings of the relaxator (blocking generator). Orig. art. has: one figure.

ASSOCIATION: none

Card 1/3

L 20112-63

ACCESSION NR: AP3006667

SUBMITTED: 12Apr62

DATE ACQ: 20Sep63

ENCL: 01

SUB CODE: SD, GE

NO REF SOV: 000

OTHER: 000

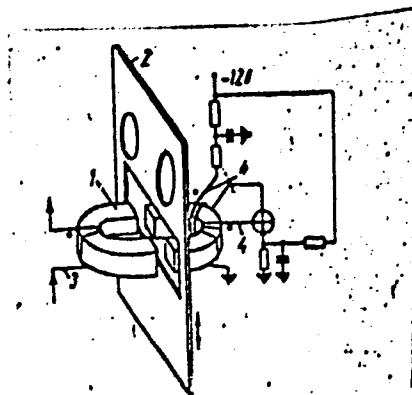
Card 2/3

L 20112-63

ACCESSION NR: AP3006667

ENCLOSURE: 01

- 1 - transformer core;
- 2 - diamagnetic current-conducting plate;
- 3 - starting (set) winding;
- 4 - relaxator winding.



Card 3/3

VASIL'YEV, I.G., inzh.; VOLOBRINSKIY, S.D., kand.tekhn.nauk, dots.; GUSEV,  
N.P., inzh.; MOLOSNOV, N.F., inzh.

Automatic voltage regulators used in separating capacity from a.c.  
traction networks. Elek. i tepl.tiaga 2 no.4:9-11 Ap '58.

(MIRA 12:3)

(Voltage regulators)

(Electric railroads--Wires and wiring)

VASIL'YEV, I.G., inzh. (Leningrad)

Checking of an electric filter system with an interference  
potential measuring device. Elek. i tepl. tiaga 6  
no.10:20-21 0 '62. (MIRA 15:11)  
(Electric railroads--Measurements)  
(Electric railroads--Current supply)

VASIL'YEV, I.G.; SHAPOV, A.I.

Sun tracking head. Isk.sput.Zem. no.11:87-93 '62. (MIRA 15:1)  
(Electronic control)

VASIL'YEV, I.G., inzh. (Leningrad); PAVLOV, V.P., inzh. (Leningrad)

Two-channel electronic switch for the cathode oscillograph.  
Elek.i tepl.tiaga 6 no.4:34-35 Ap '62. (MIRA 15:5)  
(Oscillographs)  
(Electric switchgear)

KARSH, N.A., kand.tekhn.nauk; VASIL'YEV, I.G., inzh.

Setting up a parallel operation of rectifier units. Elek.i tepl.tiaga  
6 no.1:9-10 Ja '62. (MIRA 15:1)  
(Electric current rectifiers) (Electric railroads--Substations)

VASIL'YEV, I.G., inzh;

Transformerless transistor photoelectric relay. Elek. i tepl. tiaga  
no.7:19-20 J1 '63. (MIRA 16:9)  
(Electric relays)

VASIL'YEV, I.G., inzh.; VOLOBRINSKIY, S.D., kand. tekhn. nauk;  
GUSEV, N.P., inzh.

Study of the heat resistance of contact wires. Vest. elektroprom.  
34 no.3:45-49 Mr '63. (MIRA 16:8)

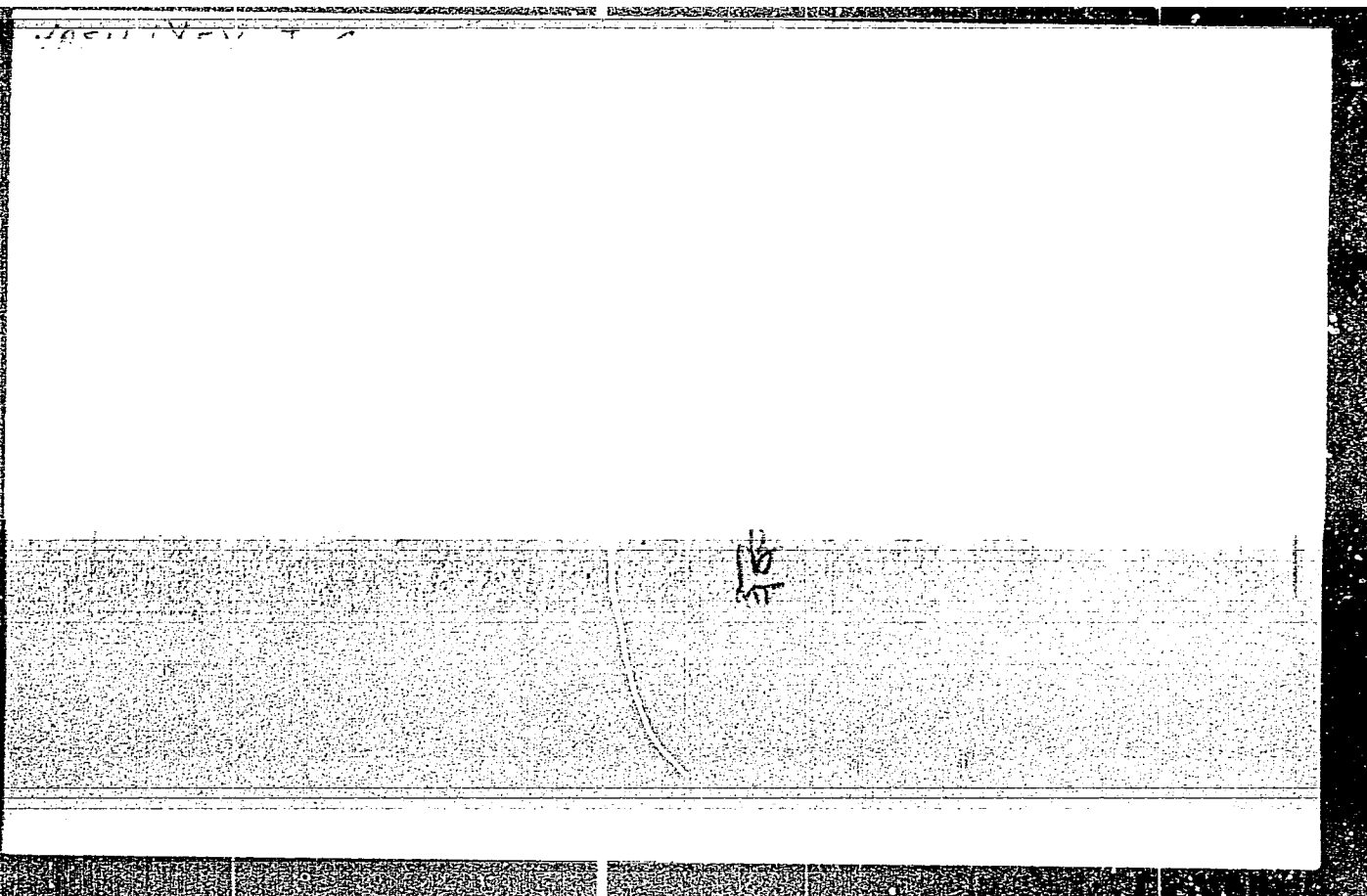
(Electric railroads—Wires and wiring)

RUBINSHTEYN, R.N.; POSTNIKOV, I.V.; VASIL'YEV, I.G.

Study of diffusion under nonlinear boundary conditions. Zav.  
lab. 30 no.7:806-812 '64. (MIRA 18:3)

"APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001858820020-7



APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001858820020-7"

124-1957-2-1434

Translation from Referativnyy zhurnal, Mekhanika, 1957, Nr 2, p 3 (USSR)

AUTHOR: Vasil'yev, I.G.

TITLE: On the Development of Elastic Shell Theory in the USSR (O razvitii teorii uprugikh obolochek v SSSR)

PERIODICAL: Tr. In-ta istorii yestestvozn. i tekhn. AN SSSR, 1956, Vol 7, pp 137-163

ABSTRACT: Bibliographic entry

1. Elastic shells--Theory

Card 1/1

137-58-5-9480

*VASIL'YEV, I.G.*

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 96 (USSR)

AUTHOR: Vasil'yev, I.G.

TITLE: Ural Rolled Shapes of the First Half of the 19th Century (Ural'-  
skiye prokatnyye profili v pervoy polovine XIX veka)

PERIODICAL: V sb.: Vopr. istorii yestestvozn. i tekhn. Nr 3. Moscow,  
AN SSSR, 1957, pp 217-225

ABSTRACT: A description is presented of materials from the archives proving the progressive nature of scientific and engineering thought in Russia during the 1840s in designing flanged and angle-rolled Fe. It is remarked that the work of architects V.P. Stasov and A.P. Bryullov and of an engineer, M.Ye. Klark, who developed designs for web-and-chord-beam roof trusses of flat-bar iron, inverted roof trusses with top beams of flat-bar iron, and girder trusses with beams of flat-bar iron, was far in advance of similar designs suggested in France and led to the concept that the top beams of Fe roof trusses be made of rolled shapes as far back as 1838. In 1840 the Russian metallurgical industry successfully carried out the first order for rolled shapes of this type and continued to develop this product

Card 1/2

137-58-5-9480

Ural Rolled Shapes of the First Half of the 19th Century

thereafter, whereas in Western Europe rolled shapes had not yet found application for structural purposes by 1840-1841.

1. Angle bars--Design    2. Angle bars--History

A.N.

Card 2/2

VASIL'YEV, I.O.

Rolled profiles machined by Ural works in the first half of the  
19th century. Vop. ist. est. i tekhn. no.3:217-225 '57. (MIRA 11:1)  
(Ural Mountain region--Rolling (Metalwork)--History)

~~VASIL'YEV~~ Ivan Grigor'yevich, kandidat tekhnicheskikh nauk; ISLANKINA, T.F.,  
redaktor; ISLENT'YEVA, P.G., tekhnicheskiy redaktor

[Vladimir Grigor'evich Shukhov, outstanding scientist and engineer]  
Vladimir Grigor'evich Shukhov - vydaiushchiisia uchenyi-inzhener.  
Moskva, Izd-vo "Znanie," 1954. 28 p. (Vsesoiuznoe obshchestvo po  
rasprostraneniю politicheskikh i nauchnykh znaniy, Ser.4, no.8)  
(MLRA 8:3)

(Shukhov, Vladimir Grigor'evich, 1853-1939)

VASIL'YEV, I.G. (Moskva)

Determination of paces between cross ribs in continuous folded structural shells. Izv. AN SSSR Otd. tekhn. nauk no.1:145-149  
Ja '55. (MLBA 8:8)

(Roofs, Shell)

USSR/Human and Animal Physiology - (Normal and Phthological).  
General Problems:

T.

Abs Jour : Ref Zhur - Biol., No 7, 1958, 31352

Author : Vasil'yev, I.G., Simnitskaya, L.P., Sklyapchim, Ye.L.,  
Smirnov, K.M., Filippov, B.G., Khitun, S.A., Shatalov, A.M.

Inst : -

Title : On the Daily periodicity of Human Efficiency.

Orig Pub : Fiziol, zh. SSR, 1957, 43, No 9, 817-824.

Abstract : No abstract.

Card 1/1

37204

S/560/61/000/011/010/012  
E032/E514

2.2/00

AUTHORS: Vasil'yev, I.G. and Shapov, A.I.  
TITLE: A sun-tracking head  
SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli.  
no.11. Moscow, 1961. Rezul'taty nauchnykh  
issledovaniy, provedennykh vo vremya polotov vtorogo  
i tret'yego kosmicheskikh korabley-sputnikov, 87-93

TEXT: The device was designed for operation in conjunction with a diffraction spectrometer for measurements of solar radiation in the far ultraviolet. The aim of the tracking head was to direct the beam of solar radiation reflected by a mirror into the slit of the spectrometer for different positions of the latter. The accuracy required was  $\pm 10'$ . The device incorporates nine photo-resistors (cadmium sulphide) of type  $\Phi C-KO$  (FS-KO) with a sensitivity maximum at  $\lambda \approx 6000 \text{ \AA}$  and a dark resistance in excess of  $10^7 \text{ Ohm}$ . The photo-resistors form a part of a bridge which is balanced in the absence of any illumination. As soon as radiation reaches a photo-resistor, an off-balance signal is produced which, by means of relays and electrical motors, turns the head towards

Card (1/2)

A sun tracking head

S/560/61/000/011/010/012  
E032/E514

the source of radiation. There are two tracking heads (rough and fine) and a schematic drawing of the apparatus, together with the basic electrical circuit, is reproduced. The total weight is 4.3 kg and the power consumption is 0.7 W. The overall dimensions are roughly 30 x 30 x 30 cm. There are 7 figures. ✓

SUBMITTED: June 7, 1961

Card 2/2

VASIL'YEV, I. G.

VASIL'YEV, I.G.; ZIMNITSKAYA, L.P.; SKLYARCHIK, Ye.L.; SMIRNOV, K.M.;  
FILIPPOV, B.G.; KHITUN, S.A.; SHATALOV, A.M.

Daily rhythm of the ability to work in man [with summary in English].  
Fiziol.zhur. 43 no.9:817-824 S '57. (MIRA 10:11)

1. Krasnoznamenny voyenny institut fizicheskoy kul'tury i sporta  
im. V.I.Lenina, Leningrad.

(PHYSICAL EFFICIENCY,  
daily rhythm (Rus))

(PERIODICITY,  
daily rhythm of phys. efficiency (Rus))

ARTOBOLVSKIY, I.I., akademik; KUDRYAVTSEV, P.S., prof.; OGORODNIKOV, K.F.,  
 prof.; RZHONSNITSKIY, B.N., kand. tekhn. nauk; DOROGOV, A.A., kand.  
 tekhn. nauk; ~~VASILYEV, I.G., kand. tekhn. nauk~~; ISLAMOV, O.I., kand.  
 geol.-miner. nauk; LEONOV, N.I., prof.; RADKEVICH, Ye.A., doktor geol.-  
 miner.nauk; KUZNETSOV, B.G., prof.; MARIYENBAKH, L.M., prof.;  
 RUBINSHTEYN, M.I., prof.; KALMYKOV, K.F., kand. biol. nauk;  
 KONFEDERATOV, I.Ya., prof.; KOZLOV, A.G.; ZUBOV, V.P., prof.;  
 IMSHINETSIIY, A.A.; DOREFMAN, Ya.G., prof.; SHUKHARDIN, S.V., kand.  
 tekhn.nauk; KEDROV, B.M., prof.; DANILEVSKIY, V.V., akademik; SHATSKIY,  
 N.S., akademik; BYKOV, K.M., akademik.

Speeches. Vop. 1st. est. 1 tekhn. no.6:111-141 '59.  
 (MIRA 12:6)

1.Chlen-korrespondent AN SSSR (for Imshinetskiy). 2. AN USSR  
 (for Danilevskiy).  
 (Science) (Technology)

VASIL'YEV, I. G. (ENGR)

VASIL'YEV, I. G. (ENGR) -- "Investigation of New Types of Roofs for Industrial Structures by Prof V.Z. Vlasov's Basic Theory of Sheathing." Sub 18 Nov 52, Moscow Order of Labor Red Banner Engineering Construction Inst imeni V.V. Kuybyshev. (Dissertation for the Degree of Candidate in Technical Sciences.)

SO: VECHERNAYA MOSKVA, January-December 1952

VASIL'YEV, I. I.

Organizatsiya dvizheniya na zheleznodorozhnom transporte (Organization of traffic in railroad transportation, by) I.I. Vasil'yev i P. Ya. Gordeyenko. Moskva, Transzheldorizdat, 1953.

v. dings., tables

Lib. has: Ft. 2

SO: N/5

755.7

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KOSTERIN, Yu.I.; VASIL'YEV, I.I.

Causes of squeaking and possibilities of its prevention in  
automobile brakes. Avt.prom. 28 no.12:21 D '62. (MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorsko-tekhnologicheskiy institut asbestovykh tekhnicheskikh izdeliy (VNIIATI).  
(Automobiles--Brakes)

VASIL'YEV, I.I.

Organization of production planning and dispatching service  
at the optical plant of the Leningrad Economic Council. Biul.  
tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform.  
no.3:77-79 '63. (MIRA 16:4)

(Leningrad---Industrial management)

VASIL'YEV, I. I., Docent

"Theory of Ordinary Quadrant Scales." Thesis for degree of Cand. Technical Sci.,  
Sub 30 Jun 49, Moscow Textile Inst.

Summary 82, 18 Dec 52, Dissertations Presented For Degrees in Science and  
Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

"APPROVED FOR RELEASE: 08/31/2001

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VASILYEV 11

APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001858820020-7"

VASIL'YEV, Ivan Ivanovich; BALADAYEV, G., red.

[Reserves into action] Rezervy - v deistvie! Saransk,  
Mordovskoe knizhnoe izd-vo, 1962. 38 p. (MIRA 17:5)

1. Direktor Saranskogo zavoda "Elektrovypryamitel',  
Mordovskaya ASSR (for Vasil'yev).

ORLOV, V.P., kand.sel'skokhoz.nauk. Prinimali uchastiye: AVROV, N.N.;  
BASENKO, P.V.; VARLAMOV, D.A.; VASIL'YEV, I.I.; VLASOV, V.H.;  
VYLEGZHANINA, V.A.; ZHIVET'YEV, V.G.; ZAVADSKIY, I.S.; ZALESSKIY,  
Ye.Ye.; ZAKORYUKIN, D.S.; ISHCHENKO, I.N.; KACHIBAYA, I.D.; KISE-  
LEV, Ye.S.; KOZHEVNIKOV, I.Z.; LISITSYN, V.I.; MESHCHERYAKOV, V.F.;  
NYURIN-VERTSBERG, R.L.; PEREPELITSA, V.M.; RYABKOV, A.D.; SKURIKHIN,  
I.P.; SOLOV'YEV, N.A.; YAS'KO, N.G.. GREBTSOV, P.P., red.; ZUBRILINA,  
Z.P., tekhn.red.

[Our farms in 1965] Nashi khoziaistva v 1965 godu. Moskva, Gos.  
izd-vo sel'khoz.lit-ry, 1959. 230 p. (MIRA 13:2)  
(Agriculture)

VASIL'YEV. I.K.. inzh.

Using nonlinear current and voltage dividers in relay-protection and  
automatic-control circuits. Elek.sta. 28 no.12:72 D '57.  
(MIRA 12:3)

(Electric circuits)

VASIL'YEV, I.K., inzhener.

Universal instrument for measuring current, voltage, power and power  
factor. Energetik 4 no.9:23 S '56. (MIRA 9:10)  
(Electric instruments) (Electric measurements)

VASIL'EV, I. N.

The problems of anatomico-physiological interrelations in wheat. Rostov na Donu, 3., Gostip. Donpoligrafizma, 1925. 15 p. (Trudy Sel'sko-khoziaistvennykh opytnykh uchrezhdenii Dona i Severnogo Kavkaza)

BC

Investigation of winter varieties (of wheat) and  
their resistance to *T. M. Yarrow* (Oomyc. and. Acad.  
Sci. U.S.S.R., 1964, 4: 104-111). Data of frost resist-  
ance following penetration is shown by increased carbon-  
hydrate content (activity of carbohydrates and immu-  
nolabile) and increased H<sub>2</sub>O content in treated seed.  
A. G. B.

ASSOCIATE METALLURGICAL LITERATURE CLASSIFICATION

ROOM BOARD  
BUILDING ONE ONE ONE

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CO

VASIL'EV, I. M.

Changes of the content of carbohydrates in wheat during the hardening against drought. I. M. Vasil'ev and N. G. Vasil'eva. *Bull. acad. sci. U. R. S. S., Class sci. math. nat.* 1934, No. 9, 1325-40 (in English 1340) (1935).—The hardening was produced by a temporary insufficient  $H_2O$  supply to plants kept in vegetative vessels. The loss of turgor and the beginning of dying off of the tips of the leaves was taken as the limit of the insufficient watering. On the day after the beginning of withering there was an increase of monosaccharides (I) and sucrose, and a decrease of hemicelluloses (II). When the tips of the leaves began to die, the sucrose content decreased; I and II increased. Immediately after watering the  $H_2O$  content in the tissues increased but remained lower than that of the controls (III); I decreased and became lower than that of III; the sucrose decreased, while II increased and exceeded that of III. When the plants recovered (8 days after watering) there was a decrease in  $H_2O$  content and I, while II and sucrose increased.

E. D. Walter

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

[illegible]

7  
VASIL'YEV, I.M.; AVDUSINA, Ye.I., redaktor izdatel'stva; ZELENIKOVA, Ye.V.,  
tehnicheskii redaktor

[Practice of overall fall and winter whitewashing of fruit trees  
and subtropical plants] Priem sploshnoi osenne-zimnei pobelki  
plodovykh derev'ev i subtropicheskikh kul'tur. Moskva, Izd-vo  
Akad.nauk SSSR, 1951. 18 p. (MLRA 10:6)  
(Fruit culture) (Tropical plants)

VASIL'YEV, Ivan Mitrofanovich; GUNAR, I.I., redaktor.

~~[Winter hardiness of plants]~~ Zimostoikost' rastenii. Moskva, Izd-vo  
Akademii nauk SSSR, 1953. 190 p. (MLA 7:1)  
(Plants--Frost resistance)

NAZAREVSKIY, S.I.; MAKAROV, S.N.; PILIPENKO, F.S.; GERASIMOV, M.V.; IL'INSKAYA, M.L.; VEKSLER, A.I., [deceased]; VASIL'YEV, I.M.; IL'INA, N.V.; SOKOLOV, S.Ya.; LOZINA-LOZINSKAYA, A.S.; SAAKOV, S.G.; ZALESSEKIY, D.M.; AVROBIN, N.A.; IVANOV, M.I.; PRIKLADOV, N.V.; SOBOLEVSKAYA, K.A.; SALAMATOV, M.N.; MALINOVSKIY, P.I.; LUCHNIK, A.I.; KRAVCHENKO, O.A.; VEKHOV, N.K.; GROZDOV, B.V.; MASHKIN, S.; BOSSE, G.G.; PALIN, P.S., (g. Shuya, Ivanovskoy oblasti); MATUKHIN; ZATVARNITSKIY, G.F.; GRACHEV, N.G.; CHERKASOV, M.I.; KIRKOPULO, Ye.N.; LEVITSKAYA, A.M.; GRISHKO, N.N.; LIKHVAR', D.F. VIL'CHINSKIY, N.M.; LYPA, A.L.; OREKHOV, M.V.; SHCHERBINA, A.A.; TSYGANKOVA, V.Z.; BARANOVSKIY, A.L.; GEORGIYEVSKIY, S.D.; STEPUNIN, G.A. OZOLIN, E.P.; LUKAYTENE, M.K.; KOS, Yu.I.; VAIL'YEV, A.V.; RUKHADZE, P.Ye.; VASHADZE, V.N.; SHANIDZE, V.M.; MANDZHAVIDZE, D.V.; KORKESHKO, A.L.; KOLESNIKOV, A.I., (g. Sochi); SERGEYEV, L.I.; VOLOSHIN, M.P.; RYBIN, V.A.; IVANOVA, B.I.; RYABOVA, T.I.; GAREYEV, E.Z.; RUSANOV, F.N.; BOCHANTSEVA, Z.P.; BLINOVSKIY, K.V.; KLYSHEV, L.K.; MUSHEGYAN, A.M.; LEONOV, L.M.

Talks given by participants in the meeting. Biul.Glav.bot.sada no.15:  
85-182 '53. (MLRA 9:1)

1. Glavnyy botanicheskiy sad Akademii nauk SSSR (for Makarov, Pilipenko, Gerasimov, Il'inskaya, Veksler); 2. Akademiya komunal'nogo khozyaystva imeni K.D. Pamfilova for Vasil'yev); 3. Vsesoyuznaya sel'skokhozyaystvennaya vystavka (for Il'ina); 4. Botanicheskiy sad Botanicheskogo instituta imeni V.L. Komarova Akademii nauk SSSR (for Sokolov, Lozina-Lozinskaya, Saakov); 5. Botanicheskiy sad Leningradskogo  
(continued on next card)

HAZAREVSKIY, S.L.---(continued) Card 2.

gosudarstvennogo ordena Lenina universiteta (for Zalesskiy); 6. Pol-yarno-Al'piyskiy botanicheskiy sad Kol'skogo filiala imeni S.M. Kirova Akademii nauk SSSR (for Avrorin); 7. Botanicheskiy sad pri Tomskom gosudarstvennom universiteta (for Ivanov); 8. Botanicheskiy sad pri Tomskom gosudarstvennom universiteta imeni V.V. Kuybysheva (for Prik-ladov); 9. Tsentral'nyy Sibirskiy botanicheskiy sad Zapadno-Sibirsko-go filiala Akademii nauk SSSR (for Salamatov, Sobolevskaya); 10. Bo-tanicheskiy sad Irkutsko gosudarstvennogo universiteta imeni A.A. Zhdanova (for Malinovskiy); 11. Altayskaya plodovo-yagodnaya opyt-naya stantsiya (for Luchnik); 12. Bashkirskiy botanicheskiy sad (for Kravchenko); 13. Lesostepnaya selektsionnaya opytnaya stantsiya deko-rativnykh kul'tur tresta Goszelenkhoz Ministerstva kommunal'nogo kho-zyaystva RSFSR (for Vekhov); 14. Bryanskiy lesokhozyaystvennyy insti-tut (for Grozdov); 15. Botanicheskiy sad pri Voronezhskom gosudar-stvennom universitete (for Mashkin); 16. Orekhovo-Zuyevskiy pedago-gicheskiy institut (for Bosse); 17. Botanicheskiy sad pri Rostovskom gosudarstvennom universitete imeni V.M. Molotova (for Matukhin); 18. Botanicheskiy sad Kuybyshevskogo gorodckogo otdela narodnogo obrazo-vaniya (for Zatvarnitskiy); 19. Zoobotanicheskiy sad pri Kazanskom universitete (for Grachev); 20. Gosudarstvennyy respublikanskiy proektnyy institut "Giprokommunistroy" (for Cherkasov); 21. Botani-cheskiy sad Odesskogo gosudarstvennogo universiteta imeni I.I. Mechni-kova (for Kirkopulo); 22. Botanicheskiy sad pri Dnepropetrovskom gosudarstvennom universitete (for Levitskaya); 23. Botanicheskiy sad  
(continued on next card)

NAZAREVSKIY, S.L.---(continued) Card 3.

Akademii nauk USSR (for Grishko, Likhvar', Vil'chinskiy); 24. Kiyevskiy sel'skokhozyaystvennyy institut (for Lypa); 25. Botanicheskiy sad Chernovitskogo gosudarstvennogo universiteta (for Orekhov); 26. Botanicheskiy sad pri L'vovskom gosudarstvennom universitete imeni Iv. Franko (for Shcherbina); 27. Botanicheskiy sad Khar'kovskogo gosudarstvennogo universiteta imeni A.M. Gor'kogo (for TSygan-kova); 28. Botanicheskiy sad Zhitomirskogo sel'skokhozyaystvennogo instituta (for Baranovskiy); 29. Botanicheskiy sad Akademii nauk Belorusskoy SSR (for Georgiyevskiy); 30. Institut biologii Akademii nauk Belorusskoy SSR (for Stepunin); 31. Botanicheskiy sad Akademii Litovskoy SSR (for Lukaytene); 32. Botanicheskiy sad Latviyskogo gosudarstvennogo universiteta (for Ozolin); 33. Kabardinskiy krayevedcheskiy botanicheskiy sad (for Kos); 34. Sukhumskiy botanicheskiy sad Akademii nauk Gruzinskoy SSR (for Vasil'yev, Rukhadze); 35. Batuskiy botanicheskiy sad Akademii nauk Gruzinskoy SSR (for Shanidze); 36. Tbilisskiy botanicheskiy sad Akademii nauk Gruzinskoy SSR (for Mandzhavidze); 37. Sochinskiy park Dendrariy (for Korkeshko); 38. Gosudarstvennyy Nikitskiy botanicheskiy sad imeni V.M. Molotova (for Sergeyev, Voloshin); 39. Krymskiy filial Akademii nauk SSSR (for Rybin); 40. Botanicheskiy sad Moldavskogo filiala Akademii nauk SSSR (for Ivanova); 41. Botanicheskiy sad Botanicheskogo instituta Akademii nauk Tadzhikskoy SSR (for Ryabova); 42. Botanicheskiy sad Kirgizskogo filiala Akademii nauk SSSR (for Gareyev); 43. Botanicheskiy (continued on next card)

NAZAREVSKIY, S.L.---(continued) Card 4.

sad Akademii nauk Usbekskey SSR (for Rusanov, Bochantseva); 44.  
Botanicheskiy sad Akademii nauk Turkmenskoy SSR (for Blinovskiy);  
45. Respublikanskiy sad Akademii nauk Kazakhskoy SSR (for Klyshev,  
Mushegyan).

(Botanical gardens)

VASIL'YEV, I.M.

Effect of temperature on the growth of plants. Fiziol.rest. 2  
no.3:239-246 My-Je '55. (MLRA 8:11)

1. Institut nauchnoy informatsii Akademii nauk SSSR, Moscow  
(Wheat) (Plants, Effect of temperature on)

VASIL'YEV, Ivan Mitrofanovich; GENKEL', P.A., professor, redakter;  
STERNBERG, M.B., redakter; POLYAKOVA, T.V., tekhnicheskiy  
redakter.

[Wintering of plants] Zimovka rastenii. Moskva, Izd-vo  
Akademii nauk SSSR, 1956. 307 p. (MLRA 9:6)  
(Plants--Frost resistance)

VASIL'YEV, I.M.

Effect of ionizing radiations on plants. Itogi nauki.Biol.nauki  
no.1:130-148 '57. (MIRA 11:3)  
(PLANTS, EFFECT OF RADIATION ON)

VASIL'YEV, I.M.

History of the problem of winterkilling and frost resistance of  
plants. Trudy Inst. 1st. est. i tekhn. 14:388-427 '57. (MIRA 11:4)  
(Plants--Frost resistance) 225

20-1-13/44

AUTHOR: Vasil'yev, I.M.

TITLE: On the Correlative Changes in Plants under the Influence of X-Rays (O korrelyativnykh izmeneniyakh v rasteniyakh pod vliyaniyem rentgenovskikh luchey)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 1, pp. 49 - 51 (USSR)

ABSTRACT: X-ray radiation causes manifold changes of various nature in plants. Many of these changes are caused immediately by these ionizing radiation, other changes are caused by consequences of primary changes and, in turn, cause changes of third order etc. The entire complicated process of the influence exercised by ionizing radiation on the organism develops according to the principle of correlations and the study of these radiation influences is still in its initial stages. As a test plant summer wheat "Moskovka", super elite of the institute for grain agriculture, was used for the experiment Nr 1 for the non-black soil zone. The plants (seedlings) were divided into three series: Series I served as a non-irradiated control series, series II was irradiated at an age of 2 days and series III at an age of 6 days with 10.000 r. Experiment Nr 2 was carried

Card 1/3

20-1-13/44

On the Correlative Changes in Plants under the Influence of X-Rays

out with the same wheat and, essentially, under the same conditions. The plants, however, were bred in distilled water. The experiments led to the following conclusions: Many changes after the influence exercised by X-rays on plants take place on account of correlations. The most important change in the irradiated plants (which, in themselves, are the cause of many other changes) is the suppression of growth in the meristem-zone. The suppression of growth in the root tips causes an accumulation of not used osmotic active substances in the cells and an increase of the suction power of the cells. Hereby large vacuoles and root hairs are produced and the roots become thicker by this process. The dark-green coloring of the leaves of irradiated plants, which is often observed, is of a correlative nature and is connected immediately with the delayed growth of the plants. The delay of the growth of the plants caused by the influence exercised by irradiation can, in individual cases, be useful, for instance for the prolongation of the life of the plants in the case of insufficient nutrition. There are 2 figures.

Card 2/3

20-1-13/44

. On the Correlative Changes in Plants under the Influence of X-Rays

ASSOCIATION: Institute for Biological Physics AN USSR  
(Institut biologicheskoy fiziki Akademii nauk SSSR)

PRESENTED: April 29, 1957, by A.L. Kursanov, Academician

SUBMITTED: December, 14, 1956

AVAILABLE: Library of Congress

Card 3/3

VASIL'YEV, I. M.

20-3-14/46

AUTHOR: Vasil'yev, I. M.

TITLE: On Acceleration of Organ Formation in Plants by X-Ray Treatment  
(Ob uskorennom organoobrazovanii u rasteniy posle vozdeystviya rentgenovskimi luchami)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 3, pp. 401 - 403 (USSR)

ABSTRACT: The retardation of growth caused by X-rays is generally known. Less known is the effect of X-rays upon the organ formation of plants, in particular on the speed of appearance of the leaves. This present report brings data of such kind for the germs of wheat as an example for the initial stage of the ontogenesis of plants. At the experiment Nr 1 the wheat 599, superelite of reproduction of the Institute of Cultivation of Corn in the Non-Black Soil Zone (Institut zernogo khozaystva nechernozemnoy zony), served as experimental plant. The growing of the germs is described. Two boxes with germs have been irradiated and two remained untouched for control. The irradiation has been carried out by means of the apparatus PYM-3, at a dose of 353 r/min and a focal distance of 20,8 cm. According to the same scheme also the experiment Nr 2 was carried out with wheat 599. As soon as the first leaves of the fifth layer

Card 1/3

20-3-14/46

On Acceleration of Organ Formation in Plants by X-Ray Treatment

showed up on the control plants, all leaves on the experimental as well as on the control plants were counted. The apportionment of plants to the number of leaves is registered. The experiment Nr 3, too, was carried out in the same manner as experiment Nr 1 and 2, only that the irradiation dose now amounted to 1000 r. Caused by the stronger irradiation dose the growth of the plants has been more delayed. The following conclusions were drawn from these experiments: 1.) The effect of X-rays upon two days old germs of wheat at a doses of 500 r and 100 r retards the growth of the plants and, at the same time, accelerates the leaf formation. 2.) The strong retardation of growth entails a more rapid leaf formation. 3.) The change of the speed of the organ formation is a very sensitive reaction of the plants to the treatment by X-rays. The accelerated course of the stages of development is of great physiological importance. Usually it results in a quick aging and a premature termination of life time. Therefore it is necessary to pay particularly attention to the change of speed of the organ formation of plants. There are 2 figures, 3 tables and no reference.

ard 2/3

20-3-14/46

On Acceleration of Organ Formation in Plants by X-Ray Treatment

ASSOCIATION: Institute for Biophysics of the AN USSR  
(Institut biologicheskoy fiziki Akademii nauk SSSR)

PRESENTED: April 29, 1957, by A. L. Kursanov, Academician

SUBMITTED: December 14, 1956

AVAILABLE: Library of Congress

Card 3/3

VASIL'YEV, I.M., TSIN' SU-YUN' [CH'IN SU-YUN'],

Accumulation of dry matter in wheat leaves following X irradiation  
[with summary in English]. Biofizika 3 no.4:454-458 '58 (MIRA 11:8)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.  
(PLANTS, EFFECT OF X RAYS ON)  
(WHEAT)

VASIL'YEV, I.M., TSIN' SU-YUN' [CHI'IN SU-YUN<sup>"</sup>], RYBALKA, N.D.

Exosmosis of substances from plant cells following X irradiation.  
[with summary in English]. Biofizika 3 no.5:576-581 '58 (MIRA 11:10)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.  
    (ROENTGEN RAYS, effects  
      exoemosis in plants (Rus))  
    (OSMOSIS AND PERMEABILITY,  
      exosmosis in plants induced by x-rays (Rus))

20-119-1-16/52

**AUTHORS:** Vasil'yev, I. M., Rybalka, N. D.,  
Tsin' Su-Yun'

**TITLE:** Sugar Accumulation in Wheat Leaves Under the Influence of  
X-Rays (Nakopleniye sakharov v list'yakh pshenitsy pod  
vliyaniyem rentgenovskogo oblucheniya)

**PERIODICAL:** Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 1,  
pp. 62-64 (USSR)

**ABSTRACT:** I. M. Vasil'yev (Reference 1) showed that various changes  
in wheat plants irradiated by X-rays have a correlative  
character. This work discussed one of these changes, that  
is to say the change of the accumulation of sugar. As ini-  
tial point served the following observations, made by I.  
M. Vasil'yev: In case of irradiation of small Röntgen  
germs with a dose of at least 3000 Röntgen the following  
unusual phenomenon is observed: From one to one and a  
half weeks after the irradiation liquid drops appeared  
on the leaves, which remind of the water drops on occasion  
of the guttation (guttatsiya). Compared with the guttation  
the following difference exists: In the case of the gutta-

Card 1/4

Sugar Accumulation in Wheat Leaves Under the  
Influence of X-Rays

20-119-1-16/52

tion the drops collect in general at the ends of the leaves, but in the here discussed phenomenon they appear at various spots of the leaf. In the course of time the drops turned into round pieces of a white substance. The drops were sticky, similar as a thickened sugar solution, had sweet taste and were readily soluble in water. Thus the idea was suggested, that the cells separate out a thickened sugar solution. To investigate this phenomenon seeds of the winter wheat 599 ("Superelite") was brought into germinating in tap water. The 2-3-days old germs were then illuminated in a luminostate. At the age of 4 days a part of the germs was irradiated and the rest of the germs remained unirradiated. After the irradiation the plants remained for from one and a half to 2 weeks in the luminostate. The analysis of the leaves, which were cut off at the leaf-roots, on sugar (monosaccharides and saccharose) is shortly discussed. In case of all here applied doses of irradiation (1000, 3000, 5000, 50 000, and 100 000 Röntgen) more sugar was found than in case of the unirradiated plants.

Card 2/4

Sugar Accumulation in Wheat Leaves Under the Influence  
of X-Rays

20-119-1-16/52

In case of doses of 3000 and 5000 Röntgen the difference is noticeably stronger than in case of 1000 Röntgen. At 50 000 and 100 000 the accumulation of sugar is somewhat less than at 3000 and 5000 Röntgen. In the case of all irradiation doses considerably more saccharose than monosaccharides was accumulated. At 3000 and 5000 Röntgen particularly great amount of saccharose accumulated. The nature of such a change of the sugar content is caused by the change of growth. After I. M. Vasil'yev suppresses the irradiation of the germs with a dose of 1000 or 3000 Röntgen the growth of the germs either partly or completely. The sugar, which because of the suppressed growth is not needed any more, but is still produced, is separated out as is described above. There are 1 figure, 2 tables and 2 references, both are Soviet.

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR  
(Institute for Biological Physics AS USSR)

Card 3/4

Sugar Accumulation in Wheat Leaves Under the  
Influence of X-Rays

20-119-1-16/52

PRESENTED: October 21, 1957, by A. L. Kursanov, Member of the Academy  
of Sciences, USSR

SUBMITTED: August 31, 1957

Card 4/4

AUTHORS: Vasil'yev, I. M., Rybalka, N. D. SOV/20-121-1-20/55

TITLE: The Influence of X-Ray Treatment Upon the Photosynthesis in Wheat Plants (Deystviya rentgenovskogo oblucheniya na fotosintez rasteniy pshenitsy)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 1, pp. 78 - 79 (USSR)

ABSTRACT: In the investigation the authors employed the following method: 4 days old seedlings of winter wheat 599 (Superelite) (which were grown in Kokh trays in a Knop' nutrient solution in a luminostate at the constant temperature of  $(23 \pm 2)^{\circ}$  and under constant illumination) were irradiated by means of the device RUM-3 at 180 kV, 15 milliamperes, without filter, and with a dosis of 960 roentgen per minute. The seeds of the irradiated and non-irradiated plants were removed immediately after the irradiation; the plants of each series were subdivided into 2 groups: The one remained under illumination in the luminostate and the other one was brought into the dark at the same temperature. After a fortnight the plants were dried and weighed. In all the experiments the photosynthesis was not interrupted by the x-ray irradiation and

Card 1/3

The Influence of X-Ray Treatment Upon the Photosynthesis in Wheat Plants

SOV/20-121-1-20/55

the plants even after an irradiation by 100,000 roentgen still accumulated dry substance (sukhoje veshchestvo). In all cases the plants irradiated in light were considerably heavier than those irradiated in the dark. After all, the increase in weight of the plants irradiated in light was still lower than it was with the plants which were not irradiated and kept in the dark. Differences depending on the dose were not found. The photosynthesis which in general is very sensitive to adverse conditions is quite insensitive to x-irradiation and still goes on after an irradiation by 100,000 roentgen. There are 1 table and 3 references, 2 of which are Soviet.

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR (Institute of Biological Physics AS USSR)

PRESENTED: April 1, 1958, by A.L.Kursanov, Member, Academy of Sciences, USSR

Card 2/3

The Influence of X-Ray Treatment Upon the Photosynthesis in Wheat Plants

SOV/20-121-1-20/55

SUBMITTED: December 31, 1958

1. Plants--Effects of radiation
2. X-ray--Physiological effects
3. Photosynthesis--Effects of radiation

Card 3/3

17(4)

AUTHORS:

Vasil'yev, I. M., Tsini' Su-Yun',  
Rybalka, N. D.

SOV/20-121-3-15/47

TITLE:

The Effect of X-Ray Irradiation Upon the Content of Chlorophyll and Hemicellulose in Leaves of Wheat (Deystviye rentgenovskogo oblucheniya na soderzhanie khlorofilla i gemitsellyuloz v list'yakh pshenitsy)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 121, Nr 3,  
pp 450 - 452 (USSR)

ABSTRACT:

The color of the leaves was changed in all the experiments with irradiation of plants. Sufficiently high doses of irradiation already after one week change the color of the leaves from light green to dark green. Seeds of the winter wheat 599 were grown in tap water on plexiglass in Kokh cups which were filled by Knop's nutrient solution. The plants were grown in a luminostat under a constant illumination at a temperature of  $23 \pm 2^{\circ}$ . The 4-day old germs (contained in a part of the cups) were irradiated without a filter at dose rates of 480 or

Card 1/3

The Effect of X-Ray Irradiation Upon the Content of  
Chlorophyll and Hemicellulose in Leaves of Wheat

SOV/20-121-3-15/47

530 r/min. The doses of the irradiation amounted to 1000, 3000, and 5000 r. The growth of the plants was not completely suppressed after an irradiation with 1000 r, but it was stopped completely after an irradiation with 3000 or 5000 r. Chlorophyll is accumulated in leaves as a result of the irradiation of the plants by doses which suppress their growth. However, the immediate cause of the increase of the chlorophyll content in the irradiated plants is not the irradiation itself, but the suppression of growth by the irradiation. The content of hemicellulose was investigated for the same plants and under the same experimental conditions as in the determination of the chlorophyll content. The analysis of the hemicelluloses is discussed in a few lines. The irradiation of the plants caused a decrease of the hemicellulose in the leaves. No sharp differences were observed between the effects caused by irradiation doses of 3000 r and 5000 r. The above discussed experiments demonstrate an important feature of the influence of ionizing radiation on plants, viz. the depolymerization

Card 2/3

The Effect of X-Ray Irradiation Upon the Content of  
Chlorophyll and Hemicellulose in Leaves of Wheat

SOV/20-121-3-15/47

of complex hydrocarbons. There are 2 tables and 5 references, 4 of which are Soviet.

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR (Institute of Biological Physics, AS USSR)

PRESENTED: April 1, 1958, by A.L.Kursanov, Academician

SUBMITTED: February 3, 1958

Card 3/3

VASIL'YEV, I.M.; RYBALKA, N.D.

Absorption of mineral substances by plant roots following X irradiation [with summary in English]. Biofizika 4 no.1:84-88 Ja '59.  
(MIRA 12:1)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.  
(PLANTS, EFFECT OF X RAYS ON)  
(PLANTS—ASSIMILATION)

VASIL'YEV, I.M.; RYBALKA, N.D.

Effect of X irradiation on the cellulose content of wheat plants.  
Biofizika 4 no. 4:507 '59. (MIRA 14:4)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.  
(WHEAT) (CELLULOSE)  
(PLANTS, EFFECT OF X RAYS ON)

VASIL'YEV, I.M.

Stimulation of plant growth by X irradiation. Fiziol.rast. 6  
no.3:312-317 My-Je '59. (MIRA 12:8)

1. Institut of Biological Physics, the U.S.S.R. Academy of  
Sciences, Moscow.  
(Plants, Effect of X rays on) (Growth (Plants))

VASIL'YEV, I.M.; TSIN' SU-YUN' [Ch'in Su-yün]

Mobilization and translocation of plastic substances in wheat seedlings following X irradiation. Fiziol. rast. 6 no.5:610-611 S-O '59.  
(MIRA 13:2)

1. Institute of Biological Physics of U.S.S.R. Academy of Sciences,  
Moscow.

(Plants, Effect of X rays on)

(Plants, Motion of fluids on)

17(10)

SOV/20-124-4-57/67

AUTHORS:

Vasil'yev, I. M., Parfenova, O. I., Rybalka, N. D.

TITLE:

Effect of X-Irradiation on the Content of Nitrogenous Substances in Wheat Plants (Vliyaniye rentgenovskogo oblucheniya na sodernizaniye azotistyykh veshchestv v rasteniyakh pshenitsy)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 4, pp 928-929 (USSR)

ABSTRACT:

It has been proved on an earlier occasion (Ref 1) that significant sugar quantities accumulate in the irradiated wheat plants. This process is effected by a suppression of growth on continuous photosynthesis (Ref 2). The investigation under consideration serves the purpose of checking the assumption according to which the above holds true also of the plastic substances mentioned in the title, which absorb light in the  $\lambda$  240-300 m $\mu$  zone, i.e. of the cyclic amino acids and of the nucleotides. Selected seeds of winter wheat 599 (Super Elite) of equal sizes were germinated in tap water, and 48-hour-old seedlings were transplanted into Knop's nutrient solution. 5-6-day-old seedlings were irradiated by means of a RUM-3-device at 15 mA, 180 kW, without a filter. The 5000 r dosis employed completely suppressed growth (Fig 1, b). The leaves of the irradiated and those of the non-irradiated plants (controls) were examined immediately, as well as some time after irradiation. The results

Card 1/3

SOV/20-124-4-57/67

## Effect of X-Irradiation on the Content of Nitrogenous Substances in Wheat Plants

are presented in figure 2. The optical densities of the extracts of either plant group differed but little immediately after irradiation (Fig 2, a); after 7 days, this density is essentially higher in the irradiated plants (Fig 2, b). The extracts are opalescent and filter with greater difficulty. The longer the period of time that has lapsed since irradiation, the higher the optical densities of the extracts rise (Fig 2, v,g). Figure 3 shows the results of the tests conducted for the purpose of clarifying the character of the substances absorbing in the  $\lambda$  240-300 m $\mu$  zone (Ref 3). From the above it follows that under such conditions as are most favorable to photosynthesis, significant quantities of cyclic amino acids and nucleotides accumulate in the leaves of the irradiated winter wheat plants. As is the case in sugars, the formative processes of these substances are not suppressed in the irradiated plants. On the other hand, growth comes to a complete standstill at only 3000 r (Ref 4). This is why amino acids and nucleotides accumulate in the irradiated plants in only the larger quantities the longer photosynthesis lasts after irradiation. -There are 3 figures and 4 references, 2 of which are Soviet.

Card 2/3

SOV/20-124-4-57/67

Effect of X-Irradiation on the Content of Nitrogenous Substances in Wheat Plants

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR  
(Institute of Biological Physics of the Academy of Sciences, USSR)

PRESENTED: October 1, 1958, by A. L. Kursanov, Academician

SUBMITTED: September 30, 1958

Card 3/3

SOV/20-125-2-46/64

24(0)

AUTHORS:

Vasil'yev, I. M., Parfenova, O. I.

TITLE:

Alteration of the Redox Potential in Potato Shoots Exposed to X-ray Treatment (Izmeneniye okislitel'no-vosstanovitel'nogo potentsiala v rostkakh kartofelya pod vliyaniyem rentgenovskogo oblucheniya)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 2, pp 401-403 (USSR)

ABSTRACT:

The redox potential is an extremely important index of the physiological state of cells. Its connections with age conditions are known: it increases with age. With rising growth intensity it decreases in general. Shoots of tubers of the Lorch (Lorkh) variety (Fig 1) were used for experiments. Carefully cleaned electrodes of the LP-5 potentiometer were introduced into the shoot tip 24 hours before the experiment, and the point of introduction was then covered with collodium. The results are given in figure 2, which shows that irradiation by use of a lead screen virtually does not affect the value Eh. Its fluctuations toward both sides were insignificant. Therefore the operation of the radiographic apparatus has no effect on the reading. Figure 3 contains data on Eh determina-

Card 1/2

SOV/20-125-2-46/64  
 Alteration of the Redox Potential in Potato Shoots Exposed to X-ray Treatment

tions in shoots a) before irradiation, b) during irradiation without lead screen at a dose of 3000 r and an intensity of the dose of 87 r/min, and c) after irradiation. The highest readings of Eh are given here. It is shown that Eh increases at the beginning of irradiation and after irradiation sometimes decreases below the initial level. With an increase of the dose up to 5000 r and of the intensity up to 260 r/min the result was quite similar. The variations were not gradual but irregular. The new fact of invariable increase of the redox potential at the beginning of irradiation is explained by the formation of oxidized products. Its decrease already during irradiation is due to reaction of the living cells which eliminate the harmful variations caused by irradiation. There are 4 figures and 5 references.

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR (Institute of Biological Physics of the Academy of Sciences, USSR)  
 PRESENTED: November 12, 1958, by A. I. Oparin, Academician  
 SUBMITTED: November 11, 1958

Card 2/2

17 (1), 21 (3)

AUTHORS: Vasil'yev, I. M., Maslova, Ye. I. SOV/20-126-6-56/67

TITLE: The Effect of X-ray Treatment on the Meristematic Cells of Embryo Stem of Wheat (Deystviye rentgenovskogo oblucheniya na meristemnyye kletki zachatochnogo steblya pshenitsy)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 6, pp 1351 - 1353 (USSR)

ABSTRACT: I. M. Vasil'yev proved that the leaves of small wheat plants continue their growth for a week after a X-ray treatment with doses suppressing the growth. After the leaves have reached the 3-fold length of the coleoptiles the growth ceases definitely. On the other hand it was noticed that leaves after a X-ray dose not completely suppressing the growth stay behind the not irradiated leaves in their growth. This holds in the case of leaves already more or less developed whereas the young ones are on the contrary more lengthened but remain more narrow. The leaves appearing still later will be normally broad but seem to be shortened (Refs 1-3). These phenomena are in the first place to be explained by the anatomical changes of the stem rudiment. Figure 1 shows microphotographs of preparations of 5 days old winter wheat plants of the species Nr

Card 1/3

The Effect of X-ray Treatment on the Meristematic  
Cells of Embryo Stem of Wheat

SOV/20-126-6-56/67

599, not irradiated and irradiated with 3000 r the day before. Also doses of 1000 and 5000 r were applied (Fig 2). This shows that already after 24<sup>h</sup> no rudiments of new leaves are formed (doses of 3000 and 5000 r). The cell size increases. After 10 days the stem rudiment is completely disorganized. All meristematic tissues disappear. After a dose of 1000 r the cell size remains unchanged and the meristem is preserved. The higher velocity of development of the leave rudiments is peculiar. In the view of these observations the prolongation of the leaves after growth suppressing doses mentioned at the beginning has to be considered as a consequence of the vacuolization and extension of the cells. No growth takes place here. The earlier occurrence of several rows of the due leaves of plants which were irradiated with doses which do not completely suppress growth is combined with a quicker development of the irradiated leave rudiments. That occurs more probably in connection with a quicker cell division than with the increase of the cells. The growth is, however, not stimulated because the earlier appearing leaves are always more narrow. Their intensive prolongation takes place at the cost of the width.

Card 2/3

The Effect of X-ray Treatment on the Meristematic  
Cells of Embryo Stem of Wheat

SOV/20-126-6-56/67

There are 2 figures and 3 Soviet references.

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR (Institute  
of Biological Physics of the Academy of Sciences, USSR)

PRESENTED: March 10, 1959, by A. L. Kursanov, Academician

SUBMITTED: March 9, 1959

Card 3/3

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Meshchanskaya 61/2, Moskva

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